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 Cell, Vol. 38, 879-887, October, 1984

Different Base/base Mismatches Are Corrected with Different Efficiency by the Methyl-directed DNA Mismatch-repair System of E. Coli

B. Kramer, W. Kramer, and H. J. Fritz

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The efficiency of methyl-directed DNA mismatch-repair of E. coli acting in vivo on heteroduplex genes of phage M13 was found to be strongly dependent on the nature of the base/base mismatch to be corrected. Three efficiency classes were characterized: high (T/G, C/A and G/G); intermediate (A/A); and low (G/A, A/G, T/T, C/C, C/T and T/C). Methyl-directed DNA mismatch repair was lost completely for any type of mismatch in strains carrying either mutL or mutS mutations. Data obtained with a mutH mutant suggest that this locus is involved in methyl-dependent DNA strand discrimination. A functional correlation is suggested between the differential repair efficiencies and the frequencies of the corresponding replication errors.

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Nuc. Acids Res MF
 13: 4431-43
 Corbett et al 1995
 15 (20): 8205-15
 Reminski & Marini

Nature MF
 365 No 6443 274-76
 1993 Strand et al

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L7	(mismatch adj repair or mismatch-repair) same PMS2-134	2	L7
L6	L5 and @Ad<20010725	46	L6
L5	l3 and l2	54	L5
L4	l3 and l2L3	0	L4
L3	mismatch adj repair and (dominant adj negative or dominant-negative)	121	L3
L2	L1 and (mismatch with repair)	506	L2
L1	(antibiotic same resist\$5 or antibiotic-resistant) and (muta\$7)	13902	L1

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